

4.5 PSP Cover Sheet (Attach to the front of each proposal)

Proposal Title: Proposal to create saline emergent wetland at Mare Island

Applicant Name: Tetra Tech Inc., c/o Rik Lantz, R.G. Chm.

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Amount of funding requested: \$ 651,443 for 3 years

Indicate the Topic for which you are applying (check only one box).

- | | |
|---|---|
| <input type="checkbox"/> Fish Passage/Fish Screens | <input type="checkbox"/> Introduced Species |
| <input checked="" type="checkbox"/> Habitat Restoration | <input type="checkbox"/> Fish Management/Hatchery |
| <input type="checkbox"/> Local Watershed Stewardship | <input type="checkbox"/> Environmental Education |
| <input type="checkbox"/> Water Quality | |

Does the proposal address a specified Focused Action? yes ☒ no

What county or counties is the project located in? Solano County

Indicate the geographic area of your proposal (check only one box):

- | | |
|---|--|
| <input type="checkbox"/> Sacramento River Mainstem | <input type="checkbox"/> East Side Trib: _____ |
| <input type="checkbox"/> Sacramento Trib: _____ | <input type="checkbox"/> Suisun Marsh and Bay |
| <input type="checkbox"/> San Joaquin River Mainstem | <input checked="" type="checkbox"/> North Bay/South Bay: <u>Napa River Eco Mgt. Zone</u> |
| <input type="checkbox"/> San Joaquin Trib: _____ | <input type="checkbox"/> Landscape (entire Bay-Delta watershed) |
| <input type="checkbox"/> Delta: _____ | <input type="checkbox"/> Other: _____ |

Indicate the primary species which the proposal addresses (check all that apply):

- | | |
|--|--|
| <input type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon | <input type="checkbox"/> Spring-run chinook salmon |
| <input type="checkbox"/> Winter-run chinook salmon | <input type="checkbox"/> Fall-run chinook salmon |
| <input type="checkbox"/> Late-fall run chinook salmon | <input type="checkbox"/> Longfin smelt |
| <input checked="" type="checkbox"/> Delta smelt | <input type="checkbox"/> Steelhead trout |
| <input checked="" type="checkbox"/> Splittail | <input type="checkbox"/> Striped bass |
| <input type="checkbox"/> Green sturgeon | <input type="checkbox"/> All chinook species |
| <input type="checkbox"/> Migratory birds | <input checked="" type="checkbox"/> All anadromous salmonids |
| <input type="checkbox"/> Other: _____ | |

Specify the ERP strategic objective and target (s) that the project addresses. Include page numbers from January 1999 version of ERP Volume I and II:

Restore 10 miles of slough in the Napa River Ecological Management Unit (Tidal Sloughs Target 1, pg 145). Restore tidal action to 1,000 to 2,000 acres in the Napa River Ecological Management Unit (Saline Emergent Wetland Target 1, pg 146).

Indicate the type of applicant (check only one box):

- | | |
|--|---|
| <input type="checkbox"/> State agency | <input type="checkbox"/> Federal agency |
| <input type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit |
| <input type="checkbox"/> Local government/district | <input checked="" type="checkbox"/> Private party |
| <input type="checkbox"/> University | <input type="checkbox"/> Other: _____ |

Indicate the type of project (check only one box):

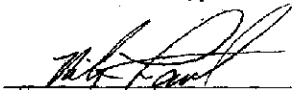
- | | |
|-------------------------------------|--|
| <input type="checkbox"/> Planning | <input checked="" type="checkbox"/> Implementation |
| <input type="checkbox"/> Monitoring | <input type="checkbox"/> Education |
| <input type="checkbox"/> Research | |

By signing below, the applicant declares the following:

- 1.) The truthfulness of all representations in their proposal;
- 2.) The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- 3.) The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Rik Lantz

Printed name of applicant


Signature of applicant

PROPOSAL TO CREATE SALINE EMERGENT WETLAND AT MARE ISLAND

1. EXECUTIVE SUMMARY

During the past 150 years, the San Francisco Bay-Delta system has suffered a dramatic loss of wetland habitat and a precipitous decline in fish, animal, and plant species that depend on those habitats for sustenance, breeding, and survival. Since 1820, approximately 184,000 acres of wetland and unknown miles of tidal sloughs have been lost to development, agriculture, and urbanization. This proposal entails creating a saline emergent wetland and tidal slough at the southern tip of Mare Island, that will help reverse these trends and restore health and biodiversity to the Bay-Delta System. The proposed work will create new habitat, breeding grounds, and a nutrient source at a critical junction between the San Francisco Bay and the Suisun Bay through which all fish migrating to the Sacramento River Delta must pass.

The proposed work will:

- Create 25 acres of sustainable saline emergent wetland habitat at the southern tip of Mare Island
- Create approximately 2,500 linear feet of tidal sloughs
- Actively involve university students, faculty, and the local community in a wetland creation project.

The proposed wetland site consists of silty clay soils at elevations of around 1.5 to 3 feet above mean sea level, which is separated from the Carquinez Strait by a dike. In terms of elevation, soils, and location, the proposed site is ideal for creating a wetland habitat.

Tasks included in the proposed work include (1) regulatory support/permitting; (2) engineering design of a sustainable saline emergent wetland; (3) construction of the wetland and slough; (4) revegetation/invasive plant control; (5) monitoring; (6) public outreach; and (7) project management.

The proposed work furthers the general goals and objectives of the CALFED Bay Delta program, specific targeted actions identified in the Ecosystem Restoration Plan and Strategic Plan for Ecosystem Restoration (CALFED 1999), and specific recommendations of the Baylands Ecosystem Habitat Goals Project (San Francisco Bay Area Wetland Ecosystem Goals Project 1999). This project addresses the following strategic objectives and targeted actions of CALFED's Ecosystem Restoration Plan:

- restore 10 miles of slough habitat for fish and associated wildlife species in the Napa River Ecological Management Unit (Tidal Sloughs Target 1, pg 145, 150)
- restore tidal action to 1,000 to 2,000 acres in the Napa River Ecological Management Unit (Saline Emergent Wetland Target 1, pg 146, 150)
- assist recovery of the delta smelt and longfin smelt (Visions for Species, pg 136)

- improve conditions for other species such as the Chinook salmon (pg 136), California clapper rail (page 138), and salt marsh harvest mouse (pg 138).

Beyond achieving the specific strategic objectives and targeted actions of CALFED, the proposed project will also further several Baylands Ecosystem Habitat Goals (San Francisco Bay Area Wetland Ecosystem Goals Project 1999), including restoring tidal marsh in the Napa River Area, improving tidal circulation, enhancing marsh patches, enhancing upland habitat to act as buffers, and restoring a "continuous band of tidal marsh along the bayshore."

The current landowner (the Navy) is a proponent of creating a wetland at this location, and the ~~planned wetland~~ is consistent with the long-term reuse plan for the parcel (wetlands/open space). The parcel will be transferred to the State Lands Commission, who also advocates the proposed enhancement (see Attachment 2, Evidence of Willing Participation by Landowner). The City of Vallejo, the Bay Conservation and Development Commission, Solano County Environmental Management Department, and the Solano County Board of Supervisors have also been informed of the proposed project (see Attachment 3, notification letters). There is no current plan to establish a wetland in this area since the lack of significant tidal action has inhibited the natural development of wetland habitat. The site was not historically a wetland because it was created by the Navy as an extension of the island.

The proposed teaming arrangement between UCD and Tetra Tech Inc. (Tetra Tech) offers a substantial base of experience in characterizing and restoring degraded habitats, and evaluating potential constraints such as the presence of endangered species or contaminants. Tetra Tech has worked extensively on Mare Island under the Navy's Comprehensive Long-term Environmental Action - Navy (CLEAN) program. The proposed site has been characterized by both parties, and our detailed knowledge of the site and surroundings, the key regulatory issues involved, and good working relationships with the relevant regulators will help ensure smooth completion of the work while satisfying regulatory requirements and concerns.

The proposed actions represent one of the only opportunities to provide wetland habitat in a critical anadromous fish migration corridor to the Delta. The availability of high quality bay sediments within the range of proper elevations to support a wetland offers a rare opportunity to augment sparse intertidal and slough habitats at relatively minimal cost.

2. PROJECT DESCRIPTION

The primary goal of this proposed wetland creation is to create a naturally functioning saline emergent wetland by installing a tidal slough to stimulate semidiurnal tidal flooding of the site. The perimeter dike and surface elevations currently prohibit tidal flushing, even though the site is at the appropriate topographic elevation and contains soils suitable to support marsh hydrology and vegetation.

This proposal is for the creation of a 25-acre saline emergent wetland and tidal slough at the southern tip of Mare Island (Figure 1). The proposed site was created around 1907 by the Navy to expand the land area available to Mare Island Naval Shipyard. The site was created by installing a dike along the southern boundary in a shallow subtidal mudflat area of the Carquinez Strait shoreline. The interior area was then backfilled with dredge spoils from Mare Island Strait. The dredge spoils consist of silty clay, which are essentially indistinguishable from the natural materials that underlie wetland at other parts of Mare Island and San Pablo Bay. The elevations of the proposed site average around 1.5 to 3 feet above mean sea level. A small breach in the dike allows seasonal flooding of the low-lying areas and some colonization of wetland species has occurred demonstrating the potential for natural colonization of beneficial species if the site is returned to tidal influence. The wetland creation project will not affect the current infrastructure at the site because no buildings or utility corridors exist. In terms of elevation, soils, and location, the proposed site is ideal for creating a wetland habitat at relatively minimal cost.

The area has been well characterized by Tetra Tech under the Navy's Installation Restoration Program (IRP) and studies conducted by UC Davis. The proposed wetland will be located at the western-most end of the Carquinez Strait in an urbanized area with extensive industrial development and very limited existing marsh habitat. The proposed actions represent one of the only opportunities in this area to provide wetland habitat along this critical anadromous fish migration corridor.

Sloughs will be designed using empirical geomorphic relationships of natural slough channels in the San Francisco Bay, such as those published by the U.S. Army Corps of Engineers (Coats and others, 1995). The main tidal slough will be a sinuous water body that mimics the water transfer functions and 3-dimensional geometry of natural sloughs. The slough will consist of a primary 3rd order channel with varying morphology to provide habitat for a diverse variety of benthic and nectic organisms. The main channel cross-section will be sized appropriately to create a tidal prism suitable for the surface area and existing land elevations of the site. Second order channels will branch from the main slough at a number of locations to promote efficient hydrologic functioning of the slough and transfer of tidal energy and nutrients to the entire marsh surface. First order channels will not be installed, but will be encouraged to form naturally by cutting short, narrow embayments in the primary channel sidewalls. The tidal sloughs will be created using standard excavation and construction techniques.

Excavation soils are expected to be non-hazardous, based on thorough site characterization conducted under the Navy CLEAN Program. These soils will be used to regrade the site to

create a varying topographic surface, with much of the marsh averaging at an elevation slightly below mean higher high tide, but with selected areas above and below that elevation to promote diverse habitats.

This project will use existing data about the site and the project team's expertise and experience to accomplish the following specific tasks:

Task 1: Regulatory support/permitting

Attend regulatory meetings; Prepare environmental documents or negative declarations (CEQA/NEPA) and obtain regulatory comments; Prepare applications and obtain necessary permits including a Clean Water Act Section 404 permit, BCDC permit, and other applicable regulatory permits.

Task 2: Engineering design of a sustainable tidal wetland

Review historical site assessment; Conduct detailed surveys of current topography, hydrology, and sediment transport; Prepare engineering design of 2,500-foot tidal slough (including 2nd and 3rd order channels);

Task 3: Construction

Dewater the site as necessary by constructing a temporary levee or repairing existing levee to allow for water to be pumped out of the site; Excavate tidal slough (approximately 20,000 cubic yards of soil); Regrade the site by distributing excavated soils to obtain maximum potential for tidal flushing; Breach levees to allow tidal action to return to the site.

Task 4: Revegetation/invasive plant control

Prepare a plan to allow native revegetation of the site; Transplant plants from the adjacent tidal wetland; Collect seeds and plant portions of the site; Remove invasive plants along the buffer zone of the wetland to prevent them from colonizing the newly constructed wetland; periodically remove invasive plants and install barriers to prevent their establishment (e.g. burlap sacks).

Task 5: Monitoring

Prepare a monitoring plan; Evaluate existing habitat conditions and biotic assemblages before wetland habitat enhancement; Evaluate change in habitat quality and biotic colonization after wetland habitat enhancement; Evaluate water quality entering and exiting wetland; Evaluate distribution and abundance of new vegetation; Make recommendations for adaptive management to correct problems in design; Evaluate data collected before and after wetland creation to measure success of project.

Task 6: Public outreach plan

Prepare a public outreach plan to involve local community, including local government, adjoining property owners, community members, and high school students in the wetland creation; Plan post-creation revegetation workdays to actively involve volunteers in the project; Distribute press releases to the local newspapers; Prepare and deliver presentations about the project at Mare Island Restoration Advisory Board meetings.

Task 7: Project management

Obtain, manage, and coordinate subcontractors; Prepare quarterly financial summaries and project status reports; Maintain project files and data; Serve as a single point of contact for regulatory interaction and CALFED; Prepare final report to document project activities, accomplishments, lessons learned, and recommendations for future activities (if any).

Deliverables for the project will include (1) monitoring plan and annual monitoring reports, (2) public outreach plan; (3) final report, (4) quarterly reports, and (5) annual review meeting with oral presentations.

The anticipated project schedule is illustrated below.

Year	FY 2000				FY 2001				FY 2001			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Task 1												
Task 2												
Task 3												
Task 4												
Task 5												
Task 6												
Task 7												

Location and/or Geographic Boundaries of the project: Mare Island is a peninsula in Solano County, California, about 25 miles northeast of the City of San Francisco (Figure 1). The Mare Island peninsula has approximate dimensions of 3.5 miles in length and 1.25 miles in width. The island originally consisted of about 1,000 acres of dry land and 300 acres of wetland; excluding the intertidal zone. The peninsula now occupies an area of about 2,800 acres. The site specified in this proposal is in the Mare Island watershed at the southernmost tip of Mare Island as illustrated in Figure 2. The site is bounded by Carquinez Strait to the south, tidal and nontidal pickleweed habitat to the west, and uplands to the north and east. The proposed wetland is schematically illustrated in Figure 3. The site is located within the Mare Island U.S.G.S. 7.5 minute quadrangle map at approximate latitude 38° 04' 00" N, longitude 122° 15' 15" W, and is roughly bounded by California State Plane Zone 3 northing and easting coordinates (1493605, 575869), (1493862, 576850), (1494202, 576956), (1494741, 576633), and (1494055, 575938).

3. ECOLOGICAL/BIOLOGICAL BENEFITS

The overall objectives of the proposed project are to create new nursery and foraging habitat for listed and endangered fish species in the Carquinez Strait and San Pablo Bay, to improve water quality in the Bay/Delta using the natural sediment trapping and filtering functions of a wetland, and to create educational and recreational opportunities for Solano County, the City of Vallejo, and Bay Area residents. Specific fish species that will benefit from additional wetland habitat at Marc Island will include delta smelt, longfin smelt, and anadromous species including chinook salmon. The emergent wetland habitat will also create secondary benefits for endangered and listed animal species, such as the California clapper rail, the black rail, and the salt marsh harvest mouse, and plant species such as Mason's Lileopsis and the Suisun Marsh Aster. Migratory waterfowl and shorebirds will also benefit from the additional wetland habitat.

The creation of wetland in this area will improve habitat quality of the Carquinez Strait by contributing much needed marsh and slough habitats in the fish migration corridor at the critical juncture of the San Pablo and Suisun Bays near the confluence of the Napa River. The establishment of new sloughs will benefit delta smelt and Pacific herring by providing additional spawning locations and foraging habitat for juveniles. The creation of wetland will also provide a nutrient source and foraging area for several other anadromous fish species that invariably pass through the Carquinez Strait en route to spawning locations upstream.

3.1 ECOLOGICAL/BIOLOGICAL OBJECTIVES

Specific primary ecological/biological objectives of the marsh creation include: (1) create a sustainable self-maintaining wetland that supports a diverse, interdependent community of fish, animals, and plants; (2) increase estuarine primary production, decomposition, and nutrient cycling to support the floral and faunal community; and (3) promote colonization by native plants and inhibit colonization by invasive species. The basis for expecting these benefits to occur is removal of the primary stressor (lack of significant tidal action) which inhibits diversity and nutrient cycling. Additionally, the fact that nearby sites with increased tidal action support similar functions and species indicates that local conditions are amenable to supporting these objectives.

The proposed project is expected to create durable benefits because the site contains high quality bay sediments at near-optimal elevations to support a saline emergent tidal marsh. Creating a slough complex to bring tidal energy, nutrients, and sediments inland into the proposed marsh area will create the necessary dynamic conditions to establish a successful and sustainable wetland. The natural tidal fluctuations of the San Pablo Bay and Carquinez Strait will create the appropriate hydraulic conditions without the need for structures or machinery that will require long-term maintenance.

The scientific hypothesis of the project is that reversing the decline in habitat by creating new habitat for listed and endangered species will expand territory available to these species, increase the number of individuals, and reduce the geographic isolation of populations.

3.2 LINKAGES

This project addresses the following specific strategic objectives and targeted actions of CALFED's Ecosystem Restoration Plan:

- restore 10 miles of slough habitat for fish and associated wildlife species in the Napa River Ecological Management Unit (Tidal Sloughs Target 1, pg 145, 150)
- restore tidal action to 1,000 to 2,000 acres in the Napa River Ecological Management Unit (Saline Emergent Wetland Target 1, pg 146, 150)
- assist recovery of the delta smelt and longfin smelt (Visions for Species, pg 136)
- improve conditions for other species such as the Chinook salmon (pg 136), California clapper-rail (page 138), and salt marsh harvest mouse (pg 138).

Beyond achieving the specific strategic objectives and targeted actions of CALFED, this project will complement several restoration programs in the immediate area, including the Cullinan Ranch and the Sonoma Baylands. The Cullinan Ranch is a CALFED-funded wetland restoration effort north of Mare Island. The Sonoma Baylands Wetland Restoration Project, a collaborative effort of federal, state, and non-governmental organizations to create emergent saline marshes immediately north of Mare Island. Additional wetland habitat and tidal sloughs detailed in this proposal will complement the restoration work being conducted at these sites by reducing geographic isolation of these projects relative to other marshes in the north Bay.

This project will also benefit other restoration efforts currently underway upstream in the Napa River, including the South Napa River Wetland Acquisition and Restoration Program and the South Napa River Tidal Slough and Floodplain Restoration Project by providing a nutrient source and juvenile rearing sites for local anadromous species that migrate through Carquinez Strait up the Napa River. The proposed work also complements restoration work conducted as part of the Suisun Marsh Restoration and Enhancement Project. Since the Carquinez Strait is a migration corridor to Suisun Bay, the proposed wetland and sloughs would link with the Suisun Marsh restoration areas and improve conditions for delta smelt, winter-run Chinook salmon, and splittail.

3.3 SYSTEM-WIDE ECOSYSTEM BENEFITS

In addition to CALFED's objectives, this project will further several Baylands Ecosystem Habitat Goals (San Francisco Bay Area Wetland Ecosystem Goals Project 1999). The habitat goals publication specifically urges the restoration of large areas of tidal marsh in the Napa River Area, improvement of tidal circulation, enhancement of marsh patches, and enhancement of upland habitat to act as buffers. A key ecosystem habitat goal for the Napa River area is the restoration of a "continuous band of tidal marsh along the bayshore." The proposed project site is situated at the western-most end of Carquinez Strait in an area with limited existing marsh habitat. Existing marshes in close proximity to the project site support endangered species such as Mason's Lilaopsis, the California Clapper Rail, and salt-marsh harvest mice. The proposed work will extend the existing pickleweed marsh along the eastern shore of the San Pablo Bay to

the south and east, resulting in the largest continuous band of pickleweed habitat for salt-marsh harvest mice in the North Bay. Furthermore, the project will extend the pickleweed marsh to connect directly with the Carquinez Straits and provide sloughs (which are essentially absent along the east shore of San Pablo) to bring fish into the marsh, providing an important opportunity and migration pathway for plants, fish, and other species. Therefore, this project presents an important opportunity to provide connectivity with existing nearby marshes toward the goal of restoring this critical habitat necessary for the rehabilitation of tidal marsh dependent species.

Furthermore, creation of the Mare Island wetland and sloughs is consistent with the U.S. Fish and Wildlife recovery plan for delta smelt. After its listing as a threatened species in 1993, the delta smelt has been a focus for state and federal agencies to restore populations, and this project will provide valuable breeding and feeding habitat. Creating wetland habitat and tidal sloughs at the southern end of Mare Island also contributes to continuing efforts at the San Pablo Bay National Wildlife Refuge to provide estuarine habitat for various fish, the salt marsh harvest mouse, and the California clapper rail.

Finally, by creating additional spawning habitat for declining native fish populations such as the splittail, Delta smelt, Chinook salmon and longfin smelt, this project will provide system-wide benefits to declining fish populations in the Bay/Delta. In addition, this emergent tidal marsh habitat will provide an additional nutrient source to Central Valley anadromous fish, which migrate through the North Bay and depend on the North Bay and marshes for some part of their life cycle and will improve water quality in the Bay/Delta using the natural sediment trapping and filtering functions of a wetland.

3.4 COMPATIBILITY WITH NON-ECOSYSTEM OBJECTIVES

This project is compatible with other stated CALFED objectives, including water quality, water supply reliability, water use efficiency, water transfers, and water management. The dike at the project site that will be breached, but will not affect the integrity of the delta levee system because it is a downstream dike in close proximity to the Bay. This project involves no change in current water management practices other than breaching a levee.

Potential Benefit to Third Parties

By restoring tidal marsh habitat, this project has potential to directly benefit Bay-Delta foodweb organisms and the groups that depend on these organisms for sport or sustenance. This project will provide additional habitat for migratory waterfowl passing through the Bay-Delta, which would benefit Ducks Unlimited and naturalists in the region. Special status species and migrating waterfowl at the San Pablo Bay National Wildlife Refuge, located adjacent to the project site, would benefit from the additional emergent wetland habitats. Sports fishermen would benefit from the additional habitat for juvenile and adult fishes. Moreover, local, state, federal, and private interests will benefit from the recovery of sensitive species and their habitats.

4. TECHNICAL FEASIBILITY AND TIMING

There are no known reasons why creating a tidal marsh at the southern tip of Mare Island would not be technically feasible. Several potential technical hurdles that could inhibit wetland development include inappropriate soil types, mobilization of contaminated soils, and alteration of habitat utilized by endangered species. These potential hurdles are evaluated below.

Inappropriate soil types have inhibited wetland creation in several instances in California. The soil types in the proposed project area have been well characterized by the Navy under the IRP. Approximately 25 soil borings have been advanced in the proposed wetland area. Lithology of soils in these borings consists of silty clay dredge spoils with occasional discontinuous sand lenses and stringers. These soils are essentially identical to Bay Mud soils that underlie natural wetland throughout the San Francisco Bay, and these soils are known to be suitable for supporting wetland plants and hydrodynamics.

Potential contamination problems have also been evaluated by the Navy under the IRP program. A small area within the parcel (~1/4 acre) is affected by chlorinated solvents in soil and groundwater. The Navy is addressing this contamination independently under the IRP program and will initiate a remedial action to address this problem in summer of 1999. The proposed action is expected to be completed within 12 months, therefore the small contaminated area is not expected to affect the wetland creation. The Navy's remediation is not a part of this proposal and is not related to the work described. Additionally, the Navy has evaluated unexploded ordnance (UXO) throughout the proposed wetland area. Soils throughout the proposed wetland area have been thoroughly screened for UXO and all identified UXO has been removed.

The presence of endangered terrestrial species including the salt marsh harvest mouse and listed and endangered plant species has also been evaluated by the Navy and by UC Davis. The current habitat quality of the proposed wetland is poor, and endangered species are not present in the area. The salt marsh harvest mouse is present in the *Salicornia* marshes immediately west of the site, and is expected to colonize the new habitat.

Required permits will include a Clean Water Section 404 permit, NEPA/CEQA land use permits or negative declaration, and a BCDC permit under the McAteer-Petras Act. Permits have not yet been applied for, and the scope of work for this proposal includes obtaining these permits or exemptions.

Other alternatives to the work described in this proposal were considered and rejected. Creating a wetland habitat by breaching the bounding dike but not creating a slough was considered but rejected because the ground surface slopes inland away from the dike, and the slope would not allow two-way exchange of tidal waters. Creating wetland habitat at other locations along the western margin of Mare Island was considered but rejected because the land surface elevations are too high and because salt marsh harvest mice are already present in these areas. In particular, the wetland within the impoundment immediately west of the project could be further tidally enhanced, but will be untouched because salt marsh harvest mice have been documented at the site.

5. MONITORING AND DATA COLLECTION METHODOLOGY

The scientific hypothesis of the project is that reversing the decline in habitat by creating new habitat for listed and endangered species will expand territory available to these species, increase the number of individuals, and reduce the geographic isolation of populations. Restoration of a fully functional tidal salt marsh is extremely difficult. While the restored habitat may superficially resemble a functional tidal salt marsh after a few years, full function in terms of nutrient and carbon dynamics, and support of fish and wildlife habitat can take decades (Zedler 1988). Our monitoring efforts will be aimed at determining the degree of function of the restored wetland compared to naturally established wetland in the vicinity of Mare Island. We will examine both biotic and abiotic parameters for a period of 2 years after restoration and compare those data to data collected at a reference wetland in the North Bay. Students and faculty at UC Davis have been or are currently involved in several restoration and enhancement projects in the North Bay including the Napa Marsh Unit restoration project of the San Pablo Bay National Wildlife Refuge and the Concord Naval Weapons Station restoration project.

Reference Wetland: The West San Pablo Bay Unit, a naturally established wetland in the San Pablo Bay National Wildlife Refuge, will be monitored for the same parameters as the created wetland to provide a reference to evaluate interannual variation. This site is a mature natural saline emergent wetland located near the proposed enhancement site, and serves as a model for a successful wetland.

Vegetation: Several permanent plots will be established in the intertidal, upper tidal (typically pickleweed habitat), and upland areas of the marshes. Plots will be monitored quarterly for plant species composition, plant cover and canopy height. Numbers of exotic plants will also be recorded. We will also monitor seed production and collect plant tissue for genetic analyses. Because of the desire to restore the wetland to as pristine a condition as possible, exotic plant species will be identified and removed from the site.

Soil Characteristics: Soil nitrogen and organic carbon will be monitored quarterly by collecting 15 cm sediment cores from all plots. All cores will be analyzed for NO_3 , NH_4 , and organic carbon. Soil salinity and redox potential will also be recorded.

Fauna: Monitoring the biota as they return to the wetland will involve surveying birds, small mammals, fish, and benthic invertebrates. Vertebrates and benthic invertebrates will be monitored using standard techniques and procedures. One of the major goals of wetland restoration is to develop fisheries and wildlife habitat. While the physical structure and species composition of the vegetation are critical for supporting suitable habitat, it is equally critical that the sites be as free from contaminants as possible. Consequently, some benthic invertebrates (e.g., *Potamocorbula amurensis*) will be collected for tissue analysis. Because of their ability to filter large quantities of plankton, bivalves may accumulate a large number of toxins such as selenium. Because these species are also the preferred food of sturgeon and diving ducks, they may play a role in the transfer of toxicants up the food chain. We will collect Asian clams and perform biomarker analyses on individuals to determine if they have been exposed to specific toxins, and if they may be accumulating these toxins in their tissues.

6. LOCAL INVOLVEMENT

A public outreach plan will be developed as one of the components of the project to inform the local community about the wetland creation. In addition to informing the public, the plan will encourage local participation in the wetland creation after the initial construction phase has been completed. Local community members, high school students, UC Davis students, and faculty members will be an integral part of the revegetation and invasive plant control efforts. By encouraging active participation in the project, the wetland creation will provide excellent opportunities for education about the importance of tidal marshes around the Bay. Planting workdays will be planned to provide organized opportunities for participation in the project. A key component of the project will be to create a sense of lasting stewardship in the wetland by those people who will be most likely to use the wetland for recreational and educational opportunities in the future.

As part of the transfer of the property from the Navy to the State of California, a Restoration Advisory Board (RAB) consisting of residents of the City of Vallejo was created. The RAB meets monthly with representatives from the Navy and regulatory agencies to discuss Mare Island and the reuse of the property. As part of the public outreach plan, presentations will be made at the RAB meetings to encourage input from the local community about the wetland creation. Other presentations will be made to local organizations as necessary to encourage participation in the project.

A third component of the outreach plan will be direct contact with the local press. In order to communicate the proposed actions to the local community, it will be necessary to write and distribute press releases to local newspapers and newsletters. The local press will also be contacted prior to planting days to allow press coverage of the restoration efforts. Published articles about the project will be obtained and included in the final report.

7. COST

The total funds requested from CALFED to perform the proposed scope of work is \$651,433. A budget showing costs for each task identified in the scope of work is included as Table 1. The budget for each task on a quarterly basis is included as Table 2. The project management task includes costs for preparing a final report documenting the wetland creation and monitoring.

The costs listed in tables 1 and 2 assume that the excavated soils will be nonhazardous, will meet wetland cover criteria, and can be redistributed on site. This assumption is merited, based on the extensive site characterization performed under the Navy CLEAN program.

Tetra Tech has an overhead rate of 69.9 percent. This overhead rate includes office rental, utilities, telecommunication, office equipment and supplies, administrative salaries, insurance, Federal, State, and local taxes, postage, other miscellaneous costs, and profit.

Schedule: The project schedule, including start and end dates for tasks is presented in Section 2, project description. The project is expected to have a duration of 3 years, primarily to allow two years of post-enhancement monitoring. If awarded, the wetland creation is scheduled to occur during the first summer following award, and be completed before the wet season begins. Project milestones include completion of engineering design of the wetland (6/30/00), completion of construction (9/30/00), and completion of post-construction monitoring (9/30/02). The project is not well suited to incremental funding.

8. COST SHARING

Cost sharing is not currently planned for the proposed work. If the work is awarded, Tetra Tech and UC Davis may apply for additional funding to augment the restoration and monitoring portions of the scope of work through the California Coastal Conservancy and similar non-profit environmental organizations. Costs for revegetation of the site and removal of non-native invasive plants will be reduced by involving volunteers from the local community and high school.

Table 1: Proposed Budget to Create a Saline Emergent Wetland at Mare Island

Task	Direct Labor Hours	Direct Salary and Benefits	Service Contracts	Material and Acquisition Costs	Miscellaneous and Other Direct Costs	Overhead and Indirect Costs	Total Cost
1. Regulatory Support/permitting	600	\$19,085	\$0	\$0	\$500	\$13,345	\$32,930
2. Design	25	\$761	\$108,333	\$0	\$1,826	\$20,907	\$131,827
3. Construction	181	\$5,827	\$208,333	\$0	\$8,500	\$62,033	\$284,693
4. Revegetation/ Invasive Control	296	\$7,501	\$0	\$0	\$3,581	\$5,245	\$16,327
5. Monitoring	0	\$0	\$125,000	\$0	\$0	\$25,000	\$150,000
6. Public Outreach	96	\$2,744	\$0	\$0	\$1,000	\$1,918	\$5,662
7. Project Management	472	\$17,205	\$0	\$0	\$770	\$12,029	\$30,004
Total	1,670	\$53,123	\$441,666	\$0	\$16,177	\$140,477	\$651,443

Note: Project management task includes 300 labor hours for final report preparation

Table 2: Proposed Quarterly Budget to Create a Saline Emergent Wetland at Mare Island

Task	Quarterly Budget Oct-Dec 99	Quarterly Budget Jan-Mar 00	Quarterly Budget Apr-Jun 00	Quarterly Budget Jul-Sep 00	Quarterly Budget Oct-Dec 00	Quarterly Budget Jan-Mar 01	Quarterly Budget Apr-Jun 01	Quarterly Budget Jul-Sep 01	Quarterly Budget Oct-Dec 01	Quarterly Budget Jan-Mar 0	Quarterly Budget Apr-Jun 02	Quarterly Budget Jul-Sep 02	Total Budget
Task 1	\$11,000	\$11,000	\$10,930										\$32,930
Task 2	\$15,000	\$59,059	\$59,060										\$133,119
Task 3				\$141,700	\$141,701								\$283,401
Task 4					\$5,827	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$16,327
Task 5			\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$150,000
Task 6	\$3,162	\$500	\$500	\$500	\$500	\$500							\$5,662
Task 7	\$3,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$8,000	\$1,000	\$1,000	\$1,000	\$1,000	\$10,004	\$30,004
Total	\$32,162	\$71,559	\$86,490	\$158,200	\$164,028	\$18,000	\$24,500	\$17,500	\$17,500	\$17,500	\$17,500	\$26,504	\$651,443

9. APPLICANT QUALIFICATIONS

The partnership between Tetra Tech and UC Davis provides extensive qualified staff to oversee and implement the project, including experienced scientists and environmental engineers who have worked extensively with wetland systems in the Bay-Delta system. Each of the applicants has a thorough familiarity with Mare Island and its ecology through previous investigations and research. Tetra Tech is the prime contractor for the Navy CLEAN program and has worked on Mare Island, including the proposed restoration site, for over 10 years. Tetra Tech will be responsible for the following project tasks; regulatory support/permitting, engineering design, construction, and revegetation/invasive plant control. UC Davis students and faculty have been involved in several restoration, enhancement, and monitoring projects in the North Bay, including three years of wetland assessment at Mare Island. UC Davis will be responsible for the monitoring task.

The project manager for this wetland creation effort will be Rik Lantz, RG, CHMM (hydrogeologist, Tetra Tech). Mr. Lantz will be responsible for project administration, staff coordination, and contractor oversight. Several technical specialists will contribute to the wetland design and construction including Dr. Michael Johnson (associate research engineer at UC Davis), Dr. June Mire (aquatic ecologist, Tetra Tech) and John Bosche, PE (environmental engineer, Tetra Tech). Biographical sketches for each of the project staff are provided below.

Rik Lantz is a hydrogeologist and environmental scientist with 13 years of experience in project management and hydrologic investigations. His technical expertise includes field investigations, groundwater/surface water interaction, and characterization of wetland hydrology and contaminants. Mr. Lantz has served as project manager for several investigations of wetlands hydrology and groundwater/surface water quality interactions at Mare Island and the Concord Naval Weapons Station. Mr. Lantz has an M.S. in geosciences from the University of Arizona and is a California registered geologist.

Dr. Michael Johnson is an associate research engineer at the John Muir Institute of the Environment at UC Davis. He has conducted several environmental projects in north bay wetlands which involve biological assessments, restoration planning, and monitoring. His experience includes the following:

- An integrated ecological assessment of three wetlands sites at Mare Island Naval Shipyard
- An integrated assessment of a linked wetland-nearshore estuarine ecosystem at Mare Island
- Baseline vegetation survey and vegetation monitoring plan at the San Pablo Bay National Wildlife Refuge
- Feasibility study of alternate wetland restoration plans for the Napa Marsh Unit of the San Pablo Bay National Wildlife Refuge
- Salt marsh modeling for the National Biological Survey

Dr. June B. Mire is a senior ecologist with 14 years of experience in aquatic field biology and natural resource management. She received her doctorate in Zoology from the University of California at Berkeley. Her academic research focused on behavior and ecology of freshwater

fishes, with an emphasis on habitat conservation. Dr. Mire is currently an aquatic ecologist and ecological discipline leader at Tetra Tech. She has coordinated wetlands assessment and monitoring for several projects, and she has developed and implemented research and management projects for endangered fishes in both central valley and eastern Californian desert habitats.

John Bosche, P.E., is a California-registered civil engineer and geotechnical engineer with 20 years of professional experience. He has been responsible for a broad range of environmental and engineering projects at Tetra Tech, including remedial design, construction management, site investigations, remedial investigations/feasibility studies, and geotechnical studies. Mr. Bosche has provided construction oversight during implementation of three separate Navy contracts (10 million dollars of remediation) which included a complex wetland restoration at Concord Naval Weapons Station. The projects encompassed contract support services including review of technical submittals, construction oversight during an extensive sampling effort, removal of contaminated wetland sediments, and restoration of wetland hydrologic function to over 20 acres of tidal wetlands. Mr. Bosche has a masters degree from Stanford University in geotechnical engineering.

Selected Project Descriptions:

Concord Naval Weapons Station Remedial Design and Wetlands Restoration

Tetra Tech designed a remedial action at the Naval Weapons Station Concord, California, for soil contaminated with heavy metals (arsenic, cadmium, copper, lead, selenium, and zinc) and hydrocarbons in an emergent saline tidal marsh. The area was purchased by the Navy in the late 1960s and 1970s as a "buffer zone" and portions of the area were subsequently determined to be contaminated. The soil contamination apparently resulted from adjacent properties and operations on the areas prior to acquisition by the Navy. In 1989, the Navy signed a Record of Decision (ROD) for the area that called for active excavation of the most contaminated areas, which cover approximately 20 acres. Tetra Tech prepared detailed remediation plans and implemented the excavation of about 20 acres of contaminated wetland sediments, with passive remediation in the form of nondestructive monitoring at 25 additional acres and vegetative restoration of the excavated areas. Tetra Tech provided construction management of the remedial subcontractors, managed physical restoration of the site, and is currently responsible for long-term ecological monitoring, including threatened and endangered species surveys.

Remedial Investigations, Tidal Wetlands and Offshore Areas, Mare Island, California

Tetra Tech has conducted environmental assessments and site investigations at the former Navy shipyard to evaluate more than 130 sites for potential threat to the environment. Tetra Tech has evaluated the environmental setting of the site, biological resources and habitat characteristics, hydrogeology, geomorphology, dredging history and bathymetry, and nature and extent of contamination.

ATTACHMENTS

ATTACHMENT 1: FIGURES

ATTACHMENT 2: EVIDENCE OF WILLING PARTICIPATION BY LANDOWNER

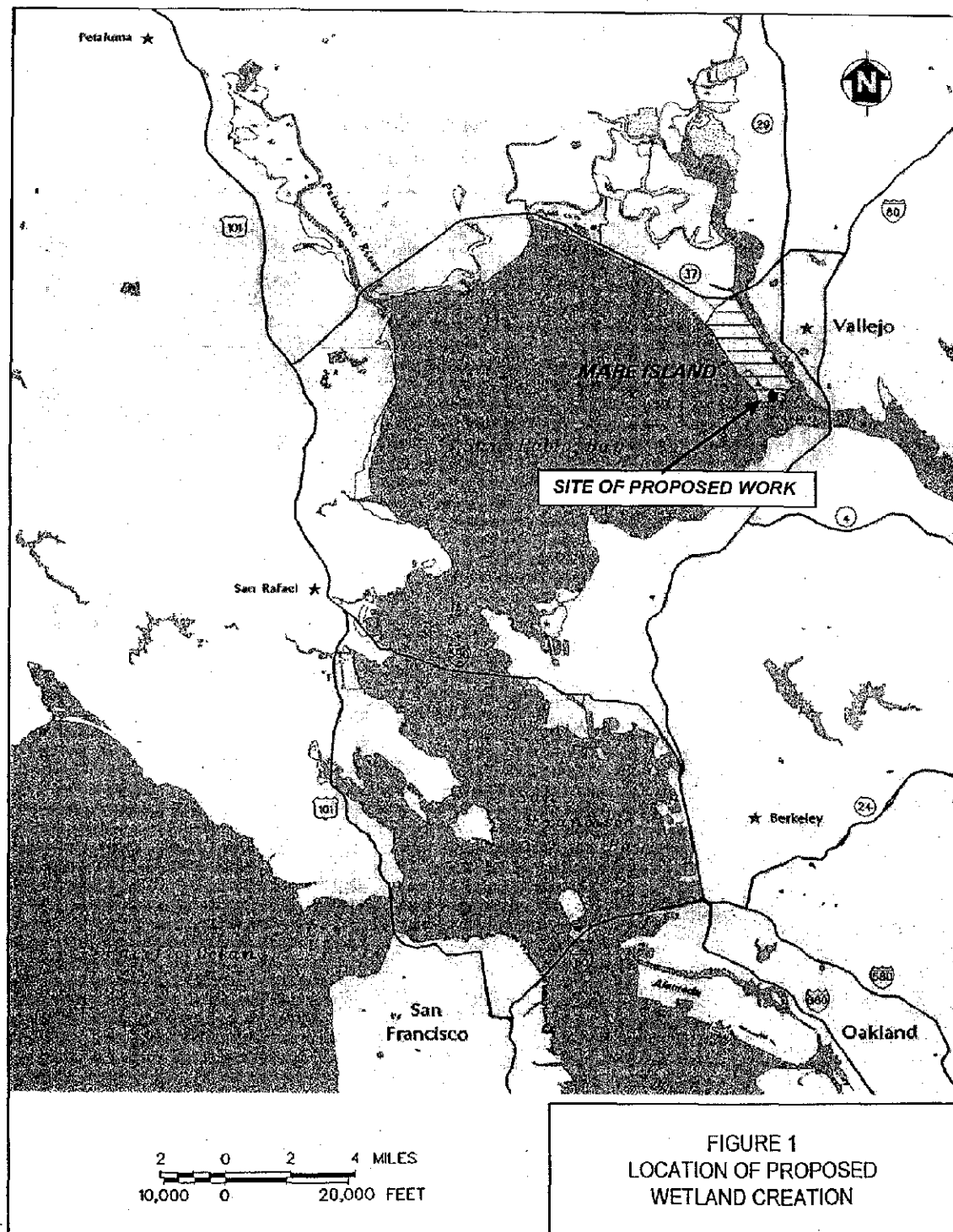
ATTACHMENT 3: NOTIFICATION LETTERS

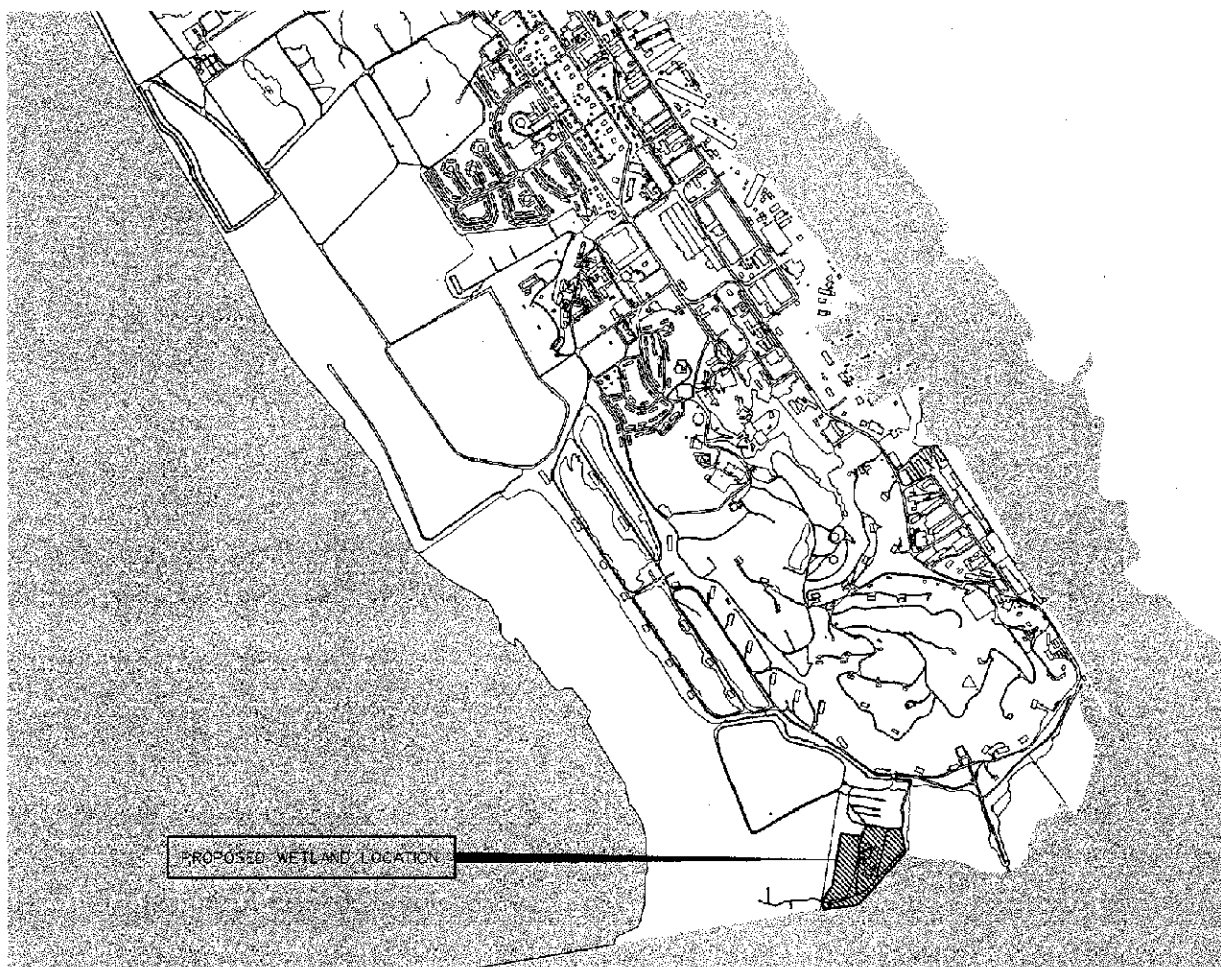
ATTACHMENT 4: STATE AND FEDERAL FORMS

ATTACHMENT 5: TERMS AND CONDITIONS

ATTACHMENT 1:

FIGURES





PROPOSED WETLAND LOCATION

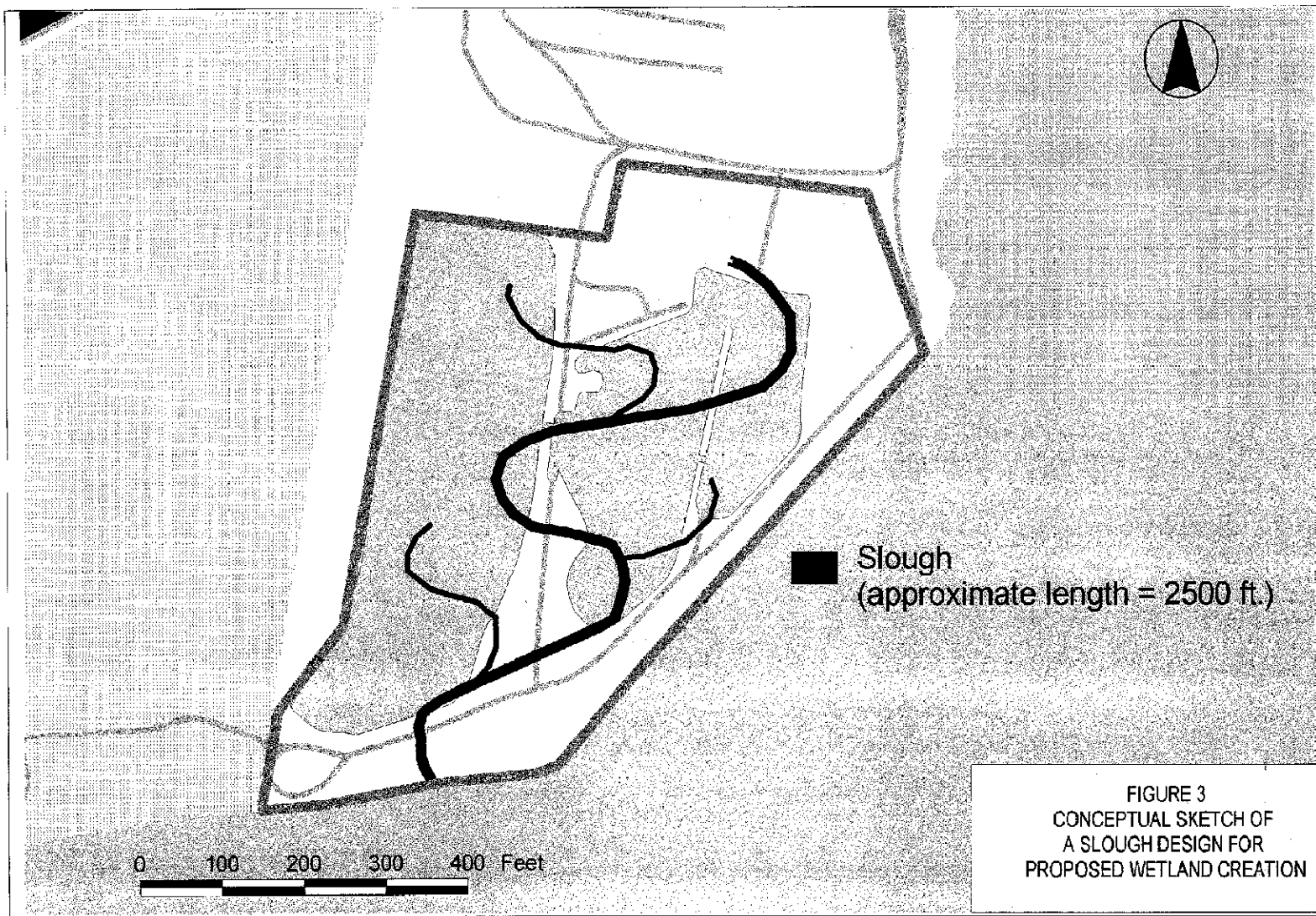
2000 0 2000
SCALE IN FEET

FIGURE 2
SITE BOUNDARIES OF
PROPOSED WETLAND CREATION

I-013833

I-013833

I-013834



I-013834

ATTACHMENT 2:

EVIDENCE OF WILLING PARTICIPATION BY LANDOWNER

The proposed site is currently owned by the U.S. Navy, who plans to transfer the property to the California State Lands Commission. Tetra Tech has discussed the proposed project in detail with Mr. Dick Logar, U.S. Navy Base Realignment and Reuse Environmental Coordinator; Mr. Robert Pender, Marc Island Lead Remedial Project Manager; Mr. David Plummer Regional Manager of the California State Lands Commission; and Mr. Blake Stevenson counsel for the California State Lands Commission. Representatives of both the present and future owners of the property have expressed willingness apply for funding, and Mr. Plummer provided written acknowledgment of the proposal (attached).

Contact information for these individuals is listed below:

Mr. Dick Logar (650) 244-3809

Mr. Robert Pender (650) 244-2327

Mr. Blake Stevenson (916) 574-1863

Mr. David Plummer (916) 574-1858

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100 South
Sacramento, CA 95833-8202



PAUL D. THAYER, Executive Officer
(916) 574-1800 FAX (916) 574-1810
California Relay Service From TDD Phone 1-800-735-2922
from Voice Phone 1-800-735-2929

Contact Phone: (916) 574-1858
Contact FAX: (916) 574-1855

April 14, 1999

File Ref: W25116

Rik Lantz
Brenda Chatfield
Tetra Tech EMI
135 Main Street
Suite 1800
San Francisco, CA 94105

RE: Mare Island; Proposal for Creation of Wetlands and Tidal Slough

Dear Mr. Lantz and Ms. Chatfield:

This is written in response to our conversation with you yesterday morning and the FAX we have received from you regarding a proposal by Tetra Tech EMI ("TtEMI") and the University of California at Davis ("UCD") to create wetlands habitat and a tidal slough within a 25 acre site at Mare Island. The site is at the southwest edge of Mare Island, to the west of building A169.

We thank you for informing us of this project, given that the Navy still has control of the property. As you know, the State expects to receive title to this property and to other reversionary lands from the Navy after necessary site remediation has been completed. As we mentioned to you, we have been in negotiations with the U.S. Fish and Wildlife Service ("Service") regarding a lease by the State of the site you are interested in, together with other property to be used for habitat and recreation. The lease to the Service would take affect after the State has title to the property, and the State Lands Commission itself has formally approved a lease at a public hearing.

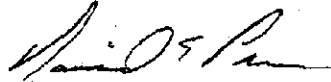
You have asked for our views regarding your grant application for the wetland and tidal slough project which you have proposed in conjunction with UCD. Our ability to respond is limited by the facts that the State has not yet received title to the land, nor has our Commission taken action regarding the lease to the U.S. Fish and Wildlife Service. As staff to the State Lands Commission, we can say that we do not object to the project provided that the Service (as our

Rik Lantz
Brenda Chatfield
April 14, 1999
Page 2

anticipated lessee) also has no objection, and will accept the lease from the State with the project in place. It should also be understood that the State will not be responsible for any hazardous substances which might be freed up by project activities. After the project is built out and the State has title, a sublease may be necessary from the Service to TtEMI and UCD for monitoring of the project. As with the lease to the Service, that sublease will require approval of the State Lands Commission itself, following compliance with CEQA.

TI thanks again for informing us of this project.

Sincerely,



David E. Plummer
Regional Manager

ATTACHMENT 3:
NOTIFICATION LETTERS



Tetra Tech EM Inc.

135 Main Street, Suite 1800 • San Francisco, CA 94105 • (415) 543-4880 • FAX (415) 543-5480

April 13, 1999

Jeffrey Blanchfield
Chief Planner
Bay Conservation and Development Commission
30 Van Ness Avenue, Room 2011
San Francisco, CA 94102

**Subject: Notice of Proposal Submittal to CALFED
Enhancement of Saline Emergent Wetland at Mare Island**

Dear Mr. Blanchfield:

Tetra Tech EM Inc. (Tetra Tech) wishes to inform you that a proposal to fund the enhancement of saline emergent wetland at Mare Island will be submitted to CALFED on April 18, 1999. This project is a joint effort by Tetra Tech and the University of California at Davis, and we are aware of the necessity to include local entities in the proposal process. Attached is the executive summary from the proposal which gives a detailed explanation of the intended scope and tasks of the project. Tetra Tech will keep you informed if the project is approved and funding is received.

If you have any questions regarding this notification, please call me at (415) 222-8325.

Sincerely,

Rik Lantz
Proposal Coordinator

1. EXECUTIVE SUMMARY

During the past 150 years, the San Francisco Bay-Delta system has suffered a dramatic loss of wetland habitat and a precipitous decline in fish, animal, and plant species that depend on those habitats for sustenance, breeding, and survival. Since 1820, approximately 184,000 acres of wetland and unknown miles of tidal sloughs have been lost to development, agriculture, and urbanization. This proposal entails creating a saline emergent wetland and tidal slough at the southern tip of Mare Island, and will help reverse these trends and restore health and biodiversity to the Bay-Delta System. The proposed work will create new habitat, breeding grounds, and a nutrient source at a critical junction between the San Francisco Bay and the Suisun Bay/Sacramento River Delta through which all migrating fish must pass.

The proposed work will:

- Create 25 acres of sustainable saline emergent wetland habitat at the southern tip of Mare Island
- Create approximately 2,500 linear feet of tidal slough
- Involve university students, faculty, and the local community in an active wetlands creation project.

The proposed wetlands site consists of silty clay soils at elevations of around 1.5 to 3 feet above mean sea level separated from the Carquinez Straits by a dike. In terms of elevation, soils, and location, the proposed site is ideal for creating a wetland habitat.

Tasks included in the proposed work include (1) engineering design of a saline emergent wetland/tidal slough complex; (2) construction of wetland and slough; (3) Monitoring pre- and post-construction habitat and biotic/floral assemblages; (4) Regulatory support/permitting, (5) public outreach, and (6) project management/reporting.

The proposed work furthers the general goals and objectives of the CALFED Bay Delta program, specific targeted actions identified in the Ecosystem Restoration Plan and Strategic Plan for ecosystem Restoration (CALFED 1999), and specific recommendations of the Baylands Ecosystem Habitat Goals Project (San Francisco Bay Area Wetlands ecosystem Goals Project 1999). This project addresses the following strategic objectives and targeted actions of CALFED's Ecosystem Restoration Plan:

- assist recovery of the delta smelt and longfin smelt (Visions for Species, pg 136), and
- restore slough habitat for fish and associated wildlife species in the Napa River Ecological Management Unit (Tidal Sloughs Target 1, pg 145),
- restore tidal action to the Napa River Ecological Management Unit (Saline Emergent Wetlands Target 1, pg 146),
- improve conditions for other species such as the Chinook salmon (pg 136), California clapper rail (page 138), and salt marsh harvest mouse (pg 138).

Beyond achieving the specific strategic objectives and targeted actions of CALFED, the proposed project will also further several Baylands Ecosystem Habitat Goals (San Francisco Bay Area Wetlands Ecosystem Goals Project 1999), including restoring tidal marsh in the Napa River Area, improving tidal circulation, enhancing marsh patches, enhancing upland habitat to act as buffers, and restoring a "continuous band of tidal marsh along the bayshore."

The current landowner (the Navy) is a proponent of creating a wetlands at this location, and the planned wetlands is consistent with the long-term reuse plan for the parcel (open space). The parcel will be transferred to the State Lands Commission, who also advocate the proposed enhancement (see letter in Attachment 1). There is no current plan to establish wetland in this area since the lack of significant tidal action in the area has inhibited the development of wetlands habitat.

The proposed teaming arrangement between UCD and TtEMI offers a substantial base of experience in characterizing and restoring degraded habitats, and evaluating potential constraints such as the presence of endangered species or contaminants. TtEMI has worked extensively on Mare Island under the Navy's Comprehensive Long-term Environmental Action - Navy (CLEAN) program. The proposed wetlands site has been characterized by both parties, and our detailed knowledge of the site and surroundings, as well as knowledge of the key regulatory issues and working relationships with the relevant regulators and will help ensure smooth completion of the work while satisfying regulatory requirements and concerns.

The proposed actions represent one of the only opportunities to provide wetlands habitat in a critical anadromous fish migration corridor. The availability of high quality bay sediments at proper elevation offers a rare opportunity to augment sparse intertidal and slough habitats at relatively minimal cost.



Tetra Tech EM Inc.

135 Main Street, Suite 1800 ♦ San Francisco, CA 94105 ♦ (415) 543-4880 ♦ FAX (415) 543-5480

April 13, 1999

Birgitta Corsello
Director
Solano County Environmental Management
601 Texas Street
Fairfield, CA 94533

**Subject: Notice of Proposal Submittal to CALFED
Enhancement of Saline Emergent Wetland at Mare Island**

Dear Ms. Corsello:

Tetra Tech EM Inc. (Tetra Tech) wishes to inform the Solano County Planning Department that a proposal to fund the enhancement of saline emergent wetland at Mare Island will be submitted to CALFED on April 18, 1999. This project is a joint effort by Tetra Tech and the University of California at Davis, and we are aware of the necessity to include local entities in the proposal process. Attached is the executive summary from the proposal which gives a detailed explanation of the intended scope and tasks of the project. Tetra Tech will keep you informed if the project is approved and funding is received.

If you have any questions regarding this notification, please call me at (415) 222-8325.

Sincerely,

Rik Lantz
Proposal Coordinator



Tetra Tech EM Inc.

135 Main Street, Suite 1800 ♦ San Francisco, CA 94105 ♦ (415) 543-4880 ♦ FAX (415) 543-5480

April 13, 1999

Al da Silva
Director of Community Development
Economic Development Division
City of Vallejo
555 Santa Clara Street, Third Floor
Vallejo, CA 94590

**Subject: Notice of Proposal Submittal to CALFED
Enhancement of Saline Emergent Wetland at Mare Island**

Dear Mr. da Silva:

Tetra Tech EM Inc. (Tetra Tech) wishes to inform the City of Vallejo that a proposal to fund the enhancement of saline emergent wetland at Mare Island will be submitted to CALFED on April 18, 1999. This project is a joint effort by Tetra Tech and the University of California at Davis, and we are aware of the necessity to include local entities in the proposal process. Attached is the executive summary from the proposal which gives a detailed explanation of the intended scope and tasks of the project. Tetra Tech will keep you informed if the project is approved and funding is received.

If you have any questions regarding this notification, please call me at (415) 222-8325.

Sincerely,

Rik Lantz
Proposal Coordinator



Tetra Tech EM Inc.

135 Main Street, Suite 1800 ♦ San Francisco, CA 94105 ♦ (415) 543-4880 ♦ FAX (415) 543-5480

April 13, 1999

Michael D. Johnson
Clerk of the Board of Supervisors
Solano County Board of Supervisors
580 Texas Street
Fairfield, CA 94533

**Subject: Notice of Proposal Submittal to CALFED
Enhancement of Saline Emergent Wetland at Mare Island**

Dear Mr. Johnson:

Tetra Tech EM Inc. (Tetra Tech) wishes to inform the Solano County Board of Supervisors that a proposal to fund the enhancement of saline emergent wetland at Mare Island will be submitted to CALFED on April 18, 1999. This project is a joint effort by Tetra Tech and the University of California at Davis, and we are aware of the necessity to include local entities in the proposal process. Attached is the executive summary from the proposal which gives a detailed explanation of the intended scope and tasks of the project. Tetra Tech will keep you informed if the project is approved and funding is received.

If you have any questions regarding this notification, please call me at (415) 222-8325.

Sincerely,

Rik Lantz
Proposal Coordinator

ATTACHMENT 4:
STATE AND FEDERAL FORMS

BIDDER'S BOND

We Tetra Tech EM, Inc.

, as PRINCIPAL, and

Reliance Insurance Company

as SURETY, are held and firmly bound unto the State of California in the penal sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named submitted by said Principal to the State of California, acting by and through the Department of Water Resources, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, to the Director of the Department to which said bid was submitted, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

In no case shall the liability of the surety here under exceed the sum of \$ 65,144.00

THE CONDITION OF THIS OBLIGATION IS SUCH,

That whereas the Principal has submitted the above-mentioned bid to the State of California, as aforesaid, for certain construction specifically described as follows, for which bids are to be opened at

Sacramento, CA

(Insert name of city where bids will be opened)

, California, on April 16, 1999

(Insert date of bid opening)

for Creation of a 25-Acre Saline Emergent Wetland and Tidal Slough at the Southern Tip ofMare Island.

Copy here the exact description of work, including location, as it appears on the proposal.

NOW, THEREFORE, If the aforesaid Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files two bonds with the Department, one to guarantee faithful performance and the other to guarantee payment for labor materials, as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this 14th
day of April, 19 99.

Tetra Tech EM, Inc.

(Seal)

Li-San Hwang Chief Executive Officer

(Seal)

Principal

(Seal)

Reliance Insurance Company

(Seal)

Sandra L. Gingras

Surety Attorney-In-Fact

(Seal)

Address 700 N. Brand Blvd. Suite 1250, Glendale, CA 91203

NOTE: Signatures of those executing for the surety must be properly acknowledged.

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Los Angeles

} ss.

On April 14, 1999, before me, R.J. Consentino, Notary Public

Date

Name and Title of Officer (e.g., "Jane Doe, Notary Public")

personally appeared Li-San Hwang

Name(s) of Signer(s)

☒ personally known to me

☐ proved to me on the basis of satisfactory evidence

to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she~~~~they~~ executed the same in his/~~her~~~~their~~ authorized capacity~~(ies)~~, and that by his/~~her~~~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person~~(s)~~ acted, executed the instrument.



WITNESS my hand and official seal.

R.J. Consentino
Signature of Notary Public

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Bidders Bond

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer

Signer's Name: _____

☐ Individual

☐ Corporate Officer — Title(s): _____

☐ Partner — ☐ Limited ☐ General

☐ Attorney in Fact

☐ Trustee

☐ Guardian or Conservator

☐ Other: _____

Signer Is Representing: _____

RIGHT THUMBPRINT
OF SIGNER
Top of thumb here

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

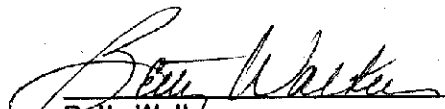
State of California

County of Los Angeles

On April 14, 1999 before me, Betty Walker, Notary Public, personally appeared Saundra L. Gingras personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.




Betty Walker

RELiance SURETY COMPANY
UNITED PACIFIC INSURANCE COMPANY

RELiance INSURANCE COMPANY
RELiance NATIONAL INDEMNITY COMPANY

ADMINISTRATIVE OFFICE, PHILADELPHIA, PENNSYLVANIA

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that RELiance SURETY COMPANY is a corporation duly organized under the laws of the State of Delaware and that RELiance INSURANCE COMPANY and UNITED PACIFIC INSURANCE COMPANY are corporations duly organized under the laws of the Commonwealth of Pennsylvania and that RELiance NATIONAL INDEMNITY COMPANY is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called "the Companies") and that the Companies by virtue of signature and seals do hereby make, constitute and appoint **Sandra L. Gingras, of Los Angeles, California** their true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver for and on their behalf, and as their act and deed any and all bonds and undertakings of suretyship and to bind the Companies thereby as fully and to the same extent as if such bonds and undertakings and other writings obligatory in the nature thereof were signed by an Executive Officer of the Companies and sealed and attested by one other of such officers, and hereby ratifies and confirms all that their said Attorney(s)-in-Fact may do in pursuance hereof.

This Power of Attorney is granted under and by the authority of Article VII of the By-Laws of RELiance SURETY COMPANY, RELiance INSURANCE COMPANY, UNITED PACIFIC INSURANCE COMPANY, and RELiance NATIONAL INDEMNITY COMPANY which provisions are now in full force and effect, reading as follows:

ARTICLE VII - EXECUTION OF BONDS AND UNDERTAKINGS

1. The Board of Directors, the President, the Chairman of the Board, any Senior Vice President, any Vice President or Assistant Vice President or other officer designated by the Board of Directors shall have power and authority to (a) appoint Attorney(s)-in-Fact and to authorize them to execute on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof, and (b) to remove any such Attorney(s)-in-Fact at any time and revoke the power and authority given to them.

2. Attorney(s)-in-Fact shall have power and authority, subject to the terms and limitations of the Power of Attorney issued to them, to execute and deliver on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof. The corporate seal is not necessary for the validity of any bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof.

3. Attorney(s)-in-Fact shall have power and authority to execute affidavits required to be attached to bonds, recognizances, contracts of indemnity or other conditional or obligatory undertakings and they shall also have power and authority to certify the financial statement of the Company and to copies of the By-Laws of the Company or any article or section thereof.

This Power of Attorney is signed and sealed by facsimile under and by authority of the following resolution adopted by the Executive and Finance Committees of the Boards of Directors of Reliance Insurance Company, United Pacific Insurance Company and Reliance National Indemnity Company by Unanimous Consent dated as of February 28, 1994 and by the Executive and Financial Committee of the Board of Directors of Reliance Surety Company by Unanimous Consent dated as of March 31, 1994.

"Resolved that the signatures of such directors and officers and the seal of the Company may be affixed to any such Power of Attorney or any certificates relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures and facsimile seal shall be valid and binding upon the Company and any such Power so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the Company, in the future with respect to any bond or undertaking to which it is attached."

IN WITNESS WHEREOF, the Companies have caused these presents to be signed and their corporate seals to be hereto affixed, this November 21, 1997.



RELiance SURETY COMPANY
RELiance INSURANCE COMPANY
UNITED PACIFIC INSURANCE COMPANY
RELiance NATIONAL INDEMNITY COMPANY

Mark W. Alsup

STATE OF Washington)
COUNTY OF King) ss

On this, November 21, 1997, before me, Laura L. Wadsworth, personally appeared Mark W. Alsup, who acknowledged himself to be the Vice President of the Reliance Surety Company, Reliance Insurance Company, United Pacific Insurance Company, and Reliance National Indemnity Company and that as such, being authorized to do so, executed the foregoing instrument for the purpose therein contained by signing the name of the corporation by himself as its duly authorized officer.

In witness whereof, I hereunto set my hand and official seal



Laura L. Wadsworth
Notary Public in and for the State of Washington
Residing at Puyallup

I, Robyn Layng, Assistant Secretary of RELiance SURETY COMPANY, RELiance INSURANCE COMPANY, UNITED PACIFIC INSURANCE COMPANY, and RELiance NATIONAL INDEMNITY COMPANY do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is still in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 14th day of APRIL, 1999



[Signature]
Assistant Secretary

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-85) FMC

COMPANY NAME

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

Jill Yamada, P. E.

DATE EXECUTED

04/15/99

EXECUTED IN THE COUNTY OF

San Francisco County, CA

PROSPECTIVE CONTRACTOR'S SIGNATURE

PROSPECTIVE CONTRACTOR'S TITLE

Operations Manager

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

Tetra Tech Inc.

Agreement No. _____

Exhibit _____

**NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY
BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS**

STATE OF CALIFORNIA)
)ss
COUNTY OF San Francisco)

Jill Yamada, P. E.
(name), being first duly sworn, deposes and
says that he or she is _____
Operations Manager
(position title) of
Tetra Tech EM Inc.
(the bidder)

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: Apr 11 15, 1999

By Jim Zinn
(person signing for bidder)

Subscribed and sworn to before me on

Jannelle Broaden
(Notary Public)



(Notarial Seal)

**STANDARD CLAUSES --
SMALL BUSINESS PREFERENCE AND CONTRACTOR IDENTIFICATION NUMBER**

NOTICE TO ALL BIDDERS:

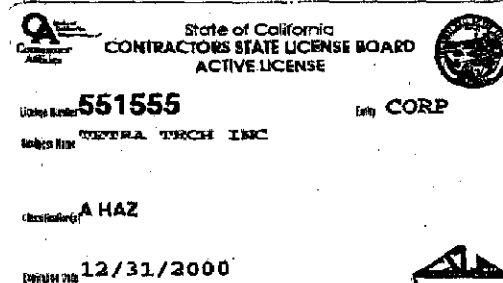
Section 14835, et. seq. of the California Government Code requires that a five percent preference be given to bidders who qualify as a small business. The rules and regulations of this law, including the definition of a small business for the delivery of service, are contained in Title 2, California Code of Regulations, Section 1896, et. seq. A copy of the regulations is available upon request. Questions regarding the preference approval process should be directed to the Office of Small and Minority Business at (916) 322-5060. To claim the small business preference, you must submit a copy of your certification approval letter with your bid.

Are you claiming preference as a small business?

____ Yes*

X No

*Attach a copy of your certification approval letter.



APPLICATION FOR FEDERAL ASSISTANCE

OMB Approval No. 0348-0043

1. TYPE OF SUBMISSION: Application <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Non-Construction Preapplication <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Non-Construction		2. DATE SUBMITTED 04/15/99	Applicant Identifier 3. DATE RECEIVED BY STATE 4. DATE RECEIVED BY FEDERAL AGENCY																																
5. APPLICANT INFORMATION Legal Name: Tetra Tech Inc. Address (give city, county, State, and zip code): 135 Main Street Suite 1800, San Francisco, CA 94105		Organizational Unit: Name and telephone number of person to be contacted on matters involving this application (give area code): Rik Lantz, 415-222-8325																																	
6. EMPLOYER IDENTIFICATION NUMBER (EIN): <div style="border: 1px solid black; padding: 2px; display: inline-block;">62-1080561</div>		7. TYPE OF APPLICANT: (enter appropriate letter in box) <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> A. State B. County C. Municipal D. Township E. Interstate F. Intermunicipal G. Special District </div> <div style="width: 48%;"> H. Independent School Dist. I. State Controlled Institution of Higher Learning J. Private University K. Indian Tribe L. Individual M. Profit Organization N. Other (Specify) _____ </div> </div> <div style="text-align: right; margin-top: -20px;"> <div style="border: 1px solid black; padding: 2px; display: inline-block;">M</div> </div>																																	
8. TYPE OF APPLICATION: <div style="display: flex; justify-content: space-around;"> <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision </div> Revision, enter appropriate letter(s) in box(es) A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration Other (specify): _____		9. NAME OF FEDERAL AGENCY: 11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT: Proposal to create a saline emergent wetland at Mare Island																																	
10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: <div style="border: 1px solid black; padding: 2px; display: inline-block;"> </div> - <div style="border: 1px solid black; padding: 2px; display: inline-block;"> </div>		12. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.): Mare Island, Solano County, CA																																	
13. PROPOSED PROJECT Start Date Ending Date 10/1/99 9/30/02		14. CONGRESSIONAL DISTRICTS OF: a. Applicant b. Project																																	
15. ESTIMATED FUNDING: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Federal</td> <td style="width: 10%;">\$</td> <td style="width: 10%; text-align: right;">00</td> <td style="width: 60%;"></td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">651,443</td> </tr> <tr> <td>Applicant</td> <td>\$</td> <td style="text-align: right;">00</td> <td></td> </tr> <tr> <td>State</td> <td>\$</td> <td style="text-align: right;">00</td> <td></td> </tr> <tr> <td>Local</td> <td>\$</td> <td style="text-align: right;">00</td> <td></td> </tr> <tr> <td>Other</td> <td>\$</td> <td style="text-align: right;">00</td> <td></td> </tr> <tr> <td>Program Income</td> <td>\$</td> <td style="text-align: right;">00</td> <td></td> </tr> <tr> <td>TOTAL</td> <td>\$</td> <td style="text-align: right;">00</td> <td style="text-align: right;">651,443</td> </tr> </table>		Federal	\$	00					651,443	Applicant	\$	00		State	\$	00		Local	\$	00		Other	\$	00		Program Income	\$	00		TOTAL	\$	00	651,443	16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS? a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON: DATE _____ b. No. <input type="checkbox"/> PROGRAM IS NOT COVERED BY E. O. 12372 <input type="checkbox"/> OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW	
Federal	\$	00																																	
			651,443																																
Applicant	\$	00																																	
State	\$	00																																	
Local	\$	00																																	
Other	\$	00																																	
Program Income	\$	00																																	
TOTAL	\$	00	651,443																																
17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT? <input type="checkbox"/> Yes If "Yes," attach an explanation. <input checked="" type="checkbox"/> No		18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.																																	
Type Name of Authorized Representative Jill Yamada		b. Title Operations Manager																																	
Signature of Authorized Representative 		c. Telephone Number 415-222-8201																																	
e. Date Signed																																			

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Standard Form 424 (Rev. 7-97)
Prescribed by OMB Circular A-102

I - 0 1 3 8 5 4

I-013854

BUDGET INFORMATION -- Construction Programs

NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Column a-b)
1. Administrative and legal expenses	\$ 30,004	\$	\$
2. Land, structures, rights-of-way, appraisals, etc.	\$	\$	\$
3. Relocation expenses and payments	\$	\$	\$
4. Architectural and engineering fees	\$ 131,827	\$	\$
5. Other architectural and engineering fees	\$	\$	\$
6. Project inspection fees	\$	\$	\$
7. Site work	\$ 166,322	\$	\$
8. Demolition and removal	\$	\$	\$
9. Construction	\$ 284,693	\$	\$
10. Equipment	\$	\$	\$
11. Miscellaneous	\$ 38,597	\$	\$
12. SUBTOTAL	\$ 651,443	\$	\$
13. Contingencies	\$	\$	\$
14. SUBTOTAL	\$	\$	\$
15. Project (program) income	\$	\$	\$
16. TOTAL PROJECT COSTS (subtract #15 from #14)	\$ 651,443	\$	\$
17. Federal assistance requested, calculate as follows: Enter eligible costs from line 16c Multiply X %			
(Consult Federal agency for Federal percentage share). Enter the resulting Federal share.			\$

ASSURANCES -- CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0042), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the Awarding Agency. Further, certain Federal assistance awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant I certify that the applicant:

1. Has the legal authority to apply for Federal assistance, and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States, and if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the assistance; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will not dispose of, modify the use of, or change the terms of the real property title, or other interest in the site and facilities without permission and instructions from the awarding agency. Will record the Federal interest in the title of real property in accordance with awarding agency directives and will include a covenant in the title of real property acquired in whole or in part with Federal assistance funds to assure non-discrimination during the useful life of the project.
4. Will comply with the requirements of the assistance awarding agency with regard to the drafting, review and approval of construction plans and specifications.
5. Will provide and maintain competent and adequate engineering supervision at the construction site to ensure that the complete work conforms with the approved plans and specifications and will furnish progress reports and such other information as may be required by the assistance awarding agency or State.
6. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
7. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
8. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. Secs. 4728-4763) relating to prescribed standards for merit systems for programs funded under one of the nineteen statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
9. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. Secs. 4801 et seq.) which prohibits the use of lead based paint in construction or rehabilitation of residence structures.
10. Will comply with all Federal statutes relating to non-discrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. Secs. 1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. Secs. 794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. Secs. 6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) Secs. 523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. 290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. Secs. 3601 et seq.), as amended, relating to non-discrimination in the sale, rental or financing of housing; (i) any other non-discrimination provisions in the specific statute(s) under which application for Federal assistance is being made, and (j) the requirements of any other non-discrimination Statute(s) which may apply to the application.

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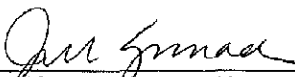
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Standard Form 424D (Rev. 4/92)
Prescribed by OMB Circular A-102

11. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provides for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal and federally assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
12. Will comply with the provisions of the Hatch Act (5 U.S.C. Secs. 1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.
13. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. Secs. 276a to 276a - 7), the Copeland Act (40 U.S.C. Secs. 276c and 18 U.S.C. Sec. 874), the Contract Work Hours and Safety Standards Act (40 U.S.C. Secs. 327-333), regarding labor standards for federally assisted construction subagreements.
14. Will comply with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
15. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the

National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. Secs. 1451 et seq.); (f) conformity of Federal actions to State (Clear Air) Implementation Plans under Section 176(c) of the Clear Air Act of 1955, as amended (42 U.S.C. Secs. 7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended, (P.L. 93-523); and (h) protection of endangered species under the Endangered Species Act of 1973, as amended, (P.L. 93-205).

16. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. Secs. 1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
17. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. Sec. 470), EO 11593 (identification and preservation of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 469a-1 et seq.).
18. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act of 1984.
19. Will comply with all applicable requirements of all other Federal laws, Executive Orders, regulations and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL 	TITLE Operations Manager	
APPLICANT ORGANIZATION Tetra Tech Inc.		DATE SUBMITTED 04/15/99

SF 424D (Rev. 4/92) Back

U.S. Department of the Interior

**Certifications Regarding Debarment, Suspension and
Other Responsibility Matters, Drug-Free Workplace
Requirements and Lobbying**

Persons signing this form should refer to the regulations referenced below for complete instructions:

Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions - The prospective primary participant further agrees by submitting this proposal that it will include the clause titled, "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transaction," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions. See below for language to be used; use this form for certification and sign; or use Department of the Interior Form 1954 (DI-1954). (See Appendix A of Subpart D of 43 CFR Part 12.)

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions - (See Appendix B of Subpart D of 43 CFR Part 12.)

Certification Regarding Drug-Free Workplace Requirements - Alternate I. (Grantees Other Than Individuals) and Alternate II. (Grantees Who are Individuals) - (See Appendix C of Subpart D of 43 CFR Part 12)

Signature on this form provides for compliance with certification requirements under 43 CFR Parts 12 and 18. The certifications shall be treated as a material representation of fact upon which reliance will be placed when the Department of the Interior determines to award the covered transaction, grant, cooperative agreement or loan.

**PART A: Certification Regarding Debarment, Suspension, and Other Responsibility Matters -
Primary Covered Transactions**

CHECK IF THIS CERTIFICATION IS FOR A PRIMARY COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
 - (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

**PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion -
Lower Tier Covered Transactions**

CHECK IF THIS CERTIFICATION IS FOR A LOWER TIER COVERED TRANSACTION AND IS APPLICABLE.

- (1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
- (2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

DI-2018
March 1955
(This form consolidated DI-1953, DI-1954,
DI-1955, DI-1956 and DI-1963)

PART C: Certification Regarding Drug-Free Workplace Requirements

CHECK ☒ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS NOT AN INDIVIDUAL

Alternate I. (Grantees Other Than Individuals)

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

- (a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;
- (b) Establishing an ongoing drug-free awareness program to inform employees about--
 - (1) The dangers of drug abuse in the workplace;
 - (2) The grantee's policy of maintaining a drug-free workplace;
 - (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
 - (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
- (c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);
- (d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will --
 - (1) Abide by the terms of the statement; and
 - (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;
- (e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification numbers(s) of each affected grant;
- (f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted --
 - (1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
 - (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;
- (g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a) (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, state, zip code)

135 Main Street

Suite 1800

San Francisco, CA 94105

Check ☒ if there are workplaces on file that are not identified here.

PART D: Certification Regarding Drug-Free Workplace Requirements

CHECK ☐ IF THIS CERTIFICATION IS FOR AN APPLICANT WHO IS AN INDIVIDUAL

Alternate II. (Grantees Who Are Individuals)

- (a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;
- (b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

PART E: Certification Regarding Lobbying
Certification for Contracts, Grants, Loans, and Cooperative Agreements

CHECK IF CERTIFICATION IS FOR THE AWARD OF ANY OF THE FOLLOWING AND
THE AMOUNT EXCEEDS \$100,000: A FEDERAL GRANT OR COOPERATIVE AGREEMENT;
SUBCONTRACT, OR SUBGRANT UNDER THE GRANT OR COOPERATIVE AGREEMENT.

CHECK IF CERTIFICATION IS FOR THE AWARD OF A FEDERAL
LOAN EXCEEDING THE AMOUNT OF \$150,000, OR A SUBGRANT OR
SUBCONTRACT EXCEEDING \$100,000, UNDER THE LOAN.

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL



TYPED NAME AND TITLE Jill Yamada, P. E. Operations Manager

DATE April 15, 1999

ATTACHMENT 5:

TERMS AND CONDITIONS

Tetra Tech accepts and acknowledges the contract terms and conditions included in the bid package, except as follows:

Terms and conditions for State (CALFED) Funds, clause 9. Indemnity

Tetra Tech proposes to modify as follows "... who may be injured or damaged by ~~Contractor in the~~ Contractor's negligent performance of this contract. (Add the following text >) Notwithstanding any other provisions to the contrary, the Seller shall not be obligated to indemnify buyer for liabilities caused by Buyers negligent acts and omissions. Buyer agrees to indemnify Seller to the same extent Seller has indemnified buyer above."